### SECRET

11 September 1957



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Dear Dick:

We are forwarding herewith eight copies of Monthly Progress Letter No. 12, covering work performed on System No. 4 during the period extending from 18 July to 1 September 1957.

Sincerely,

Dut

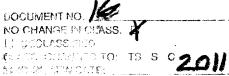
Burt

Enclosures:

CMCC Doc. No. 163X5.47 Copies 1-8 of 12

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Progress Letter No. 12 Contract No. A-101 System 4

18 July to 1 September 1957

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(This document contains a total of 5 sheets, including this title sheet.)

#### l. General

During the period covered by this progress letter the following work was performed:

- (1) most of the system testing was performed on Model 102
- (2) model 101 received additional flight testing
- (3) fabrication and assembly of the third production model was initiated
- (4) design work on the preflight test set was advanced.

#### 2. Flight Test

a. The first production model of the system was subjected to flight tests on July 19 and August 16. The first was a full-scale flight test at full altitude. The second flight was at medium altitude and was intended primarily for environmental testing.

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c. During this flight two major unit failures occurred. A fuse failed in the Band 4 receiver due to high-voltage insulation breakdown, and the camera motor failed causing loss of power to the indicator equipment. The film feed mechanism began to malfunction thirty-five minutes after operations

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#### 3. System Testing

System tests on Model 102 were continued during the report period. Most of the work has been of a routine nature, although in some cases such as that of receiver alignment it has been laborious and relatively slow. During this period design and fabrication of Band 1A and 1B receiver modification was completed. Preliminary testing during the period indicated much improvement in the cross-talk problem, and provisions are being made to retrofit the Band 1 receiving equipment for Model 101.

#### 4. System Modification

- a. The cross-talk problem between Band 2 and Band 3 receivers was discussed in Progress Letter No. 11. During this period steps were taken to procure a broad-band preamplifier to be used between Band 2 and the multi-coupler units.
- b. In the interest of simplifying the equipment and improving its reliability, the Gray-to-binary converter has been removed from the programming equipment. This converter was originally proposed to simplify visual read-out during field test. Subsequent practical use of this system has demonstrated that this is not necessary.
- c. At the request of the customer, all superheterodyne receivers have been modified to permit one of two modes of lock-on operation. At the option of the user, each receiving equipment may be set either to lock-up for a pre-set period of time on any signal exceeding the threshold, or to cause the receiver to lock-up only when a signal above threshold is present.

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#### 5. Production

During this reporting period production of Model 103 was initiated. Delay in delivery of fabricated parts and long lead time items will prevent completion of the system before the end of October.

### 6. Preflight Test Set

As indicated in Progress Letter No. 11, work is now underway on the preflight test set. In this report a short basic description of the test set was given. Work is now well advanced and it is anticipated that the prototype model will be completed between October 1 and October 15.

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Replaces Form 30-4 which may be used.

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